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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,883	06/07/2005	Michael Kaus	DE 020307	8422

24737 7590 12/27/2006  
PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
P.O. BOX 3001  
BRIARCLIFF MANOR, NY 10510

EXAMINER
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NGUYEN, PHU K

ART UNIT	PAPER NUMBER
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2628

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/27/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/537,883

Applicant(s)

KAUS ET AL.

Examiner

Phu K. Nguyen

Art Unit

2628

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.


**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

  
PHU K. NGUYEN  
PRIMARY EXAMINER  
GROUP 2300

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 2628

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Prior Art (paragraph [0007]) in view of COHEN et al. (Finite Element Methods for Active Contour Models and Balloons for 2D and 3D images).

As per claim 1, the Prior Art in paragraph [0007] teaches "method of segmenting a three-dimensional structure from a three-dimensional, and in particular medical, data set while making allowance for user corrections, having the following steps: a) provision of a three-dimensional deformable model (M) whose surface is formed by a network of meshes that connect nodes at the surface of the model, b) positioning of the model (M) at a point in a three-dimensional data set at which the structure (6) to be segmented is situated, c) manual displacement of nodes" (paragraph [0007], method of the generic kind comprises, after automatic segmentation has taken place, deforming the matched-up model manually, e.g. by displacing a node. The automatic segmentation is then performed for a second time with this deformed model). The Prior Art mentions problematic about the Prior Art's method is that the step of the method in which the internal and external energies are minimized moves the nodes that have been displaced manually back to their original positions, because it is at these positions that the energy of the deformable model is at a minimum). The Prior Art does not teach "re-calculation

Art Unit: 2628

of the nodes of the model (M) in weighted consideration of the nodes that have been displaced manually". However, Cohen teaches that the re-calculation of the nodes in weighted consideration of the nodes is well known in the art (Cohen, section 4.4, Elasticity and Rigidity Coefficients; page 31). It would have been obvious in view of Cohen to modify the initial 3D deformable models in the Prior art because the weight consideration allows a flexible matching of the edge (Cohen, section 6, Conclusion, page 33).

Claim 2 adds into claim 1 "determination of a candidate point for each sub-surface defined by meshes of the model, each candidate point being situated on a normal to the sub-surface, assignment of a weighting factor to each node that has been displaced, the weighting factor being larger the smaller the distance between the displaced node and a boundary surface of the structure to be segmented, re-calculation of the nodes of the model while allowing for the candidate points determined, the displaced nodes, and the weighting factors assigned" (Cohen, section 2.2.4, A survey of attraction Potential used in Reconstruction Methods, paragraph of Mixed version, page 16).

Claim 3 adds into claim 1 "the nodes are re-calculated by minimizing a weighted sum of external energy, internal energy and an energy that takes into account the manually displaced nodes" (Cohen, section 2.2.4, A survey of attraction Potential used in Reconstruction Methods, paragraph of Mixed version, page 16).

Claim 4 adds into claim 1 "a memory unit for storing a deformable model whose surface is formed by a network of meshes that connect the nodes at the surface of the model, and for storing a three-dimensional data set and in particular a medical data set, an image-reproduction unit for reproducing a structure to be segmented and the deformable model, a calculating unit for re-calculating the nodes of the model in weighted consideration of nodes which have been displaced manually, a positioning unit for positioning the model at the point in the three-dimensional data set at which the structure to be segmented is situated" (Prior Art paragraph [0001]; or Cohen's Sun Sparc station in section 5 of 3D Results, page 32). Claim 4 further claims the performances of steps in claim 1 which is rejected under the same reason.

Claim 5 claims a computer program to perform the steps of claim 1; therefore, it is rejected under the same reason.

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 5 is rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a positively asserted utility or a well established utility.

Art Unit: 2628

The claimed "computer program" per se is not a process or practical application since it is not concretely written into a memory, nor run by a computer to form a process.

Claim 5 is also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a positively asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

The specification does not describes as how the computer program is formed (e.g., from a ROM or readable from a communication media) and how a list of program instructions can perform the claimed steps.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu K. Nguyen whose telephone number is (571) 272 7645. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on (571) 272 7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2628

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Phu K. Nguyen  
December 16, 2006

  
**PHU K. NGUYEN**  
**PRIMARY EXAMINER**  
**GROUP 2300**